ever, such a move, in my humble opinion, would be most ill-advised because the Pakistan government has splendid leadership, a good army and a mighty impregnable position in Gilgit. Undoubtedly Gilgit is the most accessible point in that entire area and Gilgit which belongs to Pakistan, is most capably staffed, manned and led.

Even as I write my tale, changes are occurring in Hunza. In a letter received from the doctor just before my book went to press, he told me that many diseases unknown in Hunza before are making their appearance—primarily because they are brought back by native Hunzans who go out to serve in the army or work in other parts of Pakistan and the area.

The population of Hunza is as great now as its land can foster and sustain. There is no reason to believe that the birth rate in Hunza will decrease and that means that more and more of the people of Hunza will have to seek a livelihood elsewhere. But they will keep returning and bringing with them the benefits of civilization. That, in my opinion, will be the undoing of that little paradise on earth.

Being blessed with the earth's most fabulous mountain scenery may also be the cause of Hunza's undoing. I've noticed that exploration parties and mountain climbers have been congregating in that area more and more. British, Swiss, German, Italian and Austrian expeditions have been in or are planning to go into the Karakorums to scale those hundred peaks over 20,000 feet high.

The magnetism of unscaled impregnable mountain summits becomes overpowering to many men. Why bother with the Pyrenees, the Alps, the Rockies or the Andes, when the Himalayas, the Karakorums and the Hindu Kush offer a much more taunting challenge?

7:Tobe C.T-3 (1959)1960 AV7 Burusho AV7
Hunza

nature of their homeland.

However, the Mir pointed out to me most clearly and emphatically that intermarriage among members of one tribe is absolutely forbidden. There are four tribes in the Baltit area and they can marry among these four tribes . . . Diramiting, Khorokoch, Borong, Barataling . . . but definitely not among their own tribe.

Lest this sounds like a difficult matter to hold in check, I want to explain that this is easier to control than may be imagined, for the simple reason that all marriages must be sanctioned and performed by the Mir. Therefore he positively knows who is marrying whom.

However, even if this has been the rule for many hundreds of years, the total population of Hunza, even today, stands at something less than 25,000 souls and Lord Curzon in his memoirs states that in 1894, the total population of Hunza was only 6,000. Therefore, among so small a population, it is almost impossible for them to marry very far beyond a family relationship. (In 1934 it was estimated that the population had risen to 15,000.)

Let's put it in another way. If the people of Hunza have remained more or less a pure people for nigh on 1,000 years and the population today is only 25,000, there must have been fairly close intermarriages. Perhaps that would, as I mentioned, account for the similarity of features.

I want to stress, at this point, that I came to Hunza primarily to learn and study (1) about their health and longevity and (2) about their means and methods of agriculture.

Let's examine or re-examine a few of the more pertinent details of their unusual country.

Hunza is a country that lies along the Hunza River

into the "low, barrel chests" reported by travelers. (I found that when they took off their shirts the low, barrel chests revealed strong asymmetry, with ribs notably warped by rickets.) During my first winter, I developed a typical case of beriberi, even though my diet was more varied than theirs and was adequate in quantity.

The basic trouble rests not with the Hunzas, who are smart, intelligent, and hard-working, but with their country. There is no flat land to all of Hunza. Villages and farms are built on alluvial cones—fan-shaped masses of gravel dumped by streams rushing from mountain glaciers down into the valleys—and the small cultivated areas simply are not extensive enough to support the constantly increasing population. (The Mir estimated the population of his country at 25,000 in 1951. According to one of the last of the British agents stationed in nearby Gilgit, Hunza's population was increasing at the rate of 30 per cent each decade. Rising emigration and the absence of written records obscure the reality, as one might imagine.)

Hunza's slopes are so steep they must be terraced by the laborious construction of hand-built retaining walls of boulders. I measured one cultivated slope of 60 degrees—so steep that the retaining walls were twice as high as the cultivated plots they supported. And sometimes Hunza farmers will even create arable soil on top of bare rock. After a cement-shaped wall at the foot of any fairly gentle rock slope is built high enough so the top of the wall is level with the top of the slope, the wall is carefully chinked and mud-caked, then sandy water from the nearest irrigation ditch is admitted to make a small pond. When the sand settles out, the clear water is drained, and more sandy water is admitted. This process is repeated for about two years, until enough sand accumulates to allow cultivation.

Much of the "soil" of Hunza fields is thus not really soil. Rather, it is a jumble of unweathered boulders, gravel, and sand. Since Hunza is a cool but exceedingly dry desert, practically no plant food is formed. The scant rain that falls soaks rapidly through the spongy sand, leaches out any trace of plant food that may be present, and carries it down to the river. Not even sagebrush will grow on the unirrigated areas, so most slopes are barren. Newly irrigated areas are

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Hunza

137 no movie that Hunzas have told me, "If
311 you irrigate new land, you must eat for
five years somewhere else."

24 Hunzas are skillful at building a
136 limited fertility into their sterile
137 material, given enough time. All sheep
manure is carefully saved, and the
fields are fertilized with it four times
during each growing season. Frequent
irrigation works with summer warmth
and mountain cairns to decompose the
manure rapidly. The growing plants
then have a few weeks of available
food after each fertilization, before
drainage again removes the plant
food. Hunza farming is actually hy-
droponic gardening, with the soil func-
tioning merely to anchor the plants.

Plants, the plants will receive
enough of only those foods that occur
abundantly in sheep manure. Nitrates,
phosphates, and probably calcium are
deficient. Yields of wheat and alfalfa
are notably lower per acre than are
yields from better fertilized American
acres. Apricot trees generally have
reddish leaves at the growing tips, a
rare sign of soil deficiencies.

413 Even the most painstaking hydro-
241 ponic gardening cannot compensate
237 for deficiencies in the food chemistry.
However, their system makes Hunza
one of the few countries where an
extensive economy is absolutely de-
pendent upon the pastoral economy.
123 Even in the high mountain summer
pastures, the sheep are carefully herded
into small cotes in order to preserve
each night's droppings. Every few
days a man climbs down the steep trail
with a load of manure on his back.
Effectively, the fertility of the high
mountain pastures is being transferred
down to Hunza's fields.

413 Unfortunately, the human popula-
● 161 tion has already grown so large that
167 the fields cannot provide sufficient
food. Hunzas are moving out of their
country in rather large numbers. Al-
though the exact total of annual
emigrants is unknown, it is clear that
most of these go to the lower villages
near Gilgit, where they soon displace
their less industrious Shensa predeces-
sors. Hundreds of Hunza's young men
join the Pakistan army. Others take
work as servants, where their honesty,
industry, and common sense make
them highly valued. The Hunzas
realize, as certain Western tourists do
not, that their country is a land of
little food, and even less opportunity
for the future, picturesque as it is.

4; Durand G-3 (1888-93) 1900 AVI Kashmir
Burushe AV7

it lies entirely on the right bank of the Hunza river; above Hunza, as far as the passes of the Hindu-Kush, it embraces both banks. It is bounded on the north and east by the Hindu-Kush, which separates it from the Pamirs and the valley of the Yarkand river; to the west, by a range which separates it from the Karumbar or Ishkuman valley; and to the south, by the Hunza river which divides it from Nagar. The total population probably amounts to some ten thousand souls. The country is racially separated into two divisions, Gujhal and Kanjut. Gujhal begins at a village called Gulmit, eighteen miles above Hunza, stretches to the passes, and is inhabited by emigrants from Wakhan, who still speak the dialect of their original home. Kanjut or Hunza proper comprises the rest of the country, and is inhabited by a Dard race of the Yeshkun caste, speaking Burishki.

Hunza and Nagar were, according to tradition, ruled by the same chief till some centuries ago, when the ruler of the day divided the country between his two twin sons, who were deadly enemies. The Hunza ruler was murdered by one of his brother's adherents, and left an only daughter. This young lady fell in love with her cousin, the son of the ruler of Nagar, and the lovers met, necessarily by stealth, the prince swimming across the Hunza river every night. The result was a son, the founder of the present line, which is called Ayeshé, or heavenly; for, to conceal the mishap, the story in Hunza is that the father was a prince from Shignan, but that his name having been forgotten he was called Ayesho, or the "heaven-sent." The Hunza chief is styled Thum, as was his brother

4a Durand G-3 (1888-93) 1900 AV1 Kashmir
Burushe AV 7

The cultivation in Hunza is very limited; the
241 finest stretch is just below the fort of the chief, and
311 extends for some six and a half miles in length with a width of from a mile to a mile and a half, the whole
[361] of the land being irrigated. This main stretch of arable land, which is studded with villages, lies at an altitude of eight thousand feet, and faces south, and the climate here is delightful. Further up the valley lie scattered patches of cultivation, getting poorer and poorer as the altitude increases. The mountains enclosing the valley are very precipitous even for the Hindu-Kush; wood and grazing for cattle are therefore unusually scarce, and the people suffer in conse-
291 quence. The clothing of the people is practically the same both in Hunza and Nagar as it is in Chitral, and has been described before, the only difference being that the men's stockings are not knitted in such elaborate patterns, and that, as a general rule, the woollen outer robe is, in Hunza especially, more often white than brown. All, except on State occasions when the higher ranks don the turban, wear the Dard head-dress. This is a long bag of brown woollen cloth rolled back on itself till it forms a cap, which is one fold thick on the top, with a border an inch or so thick round the head. It makes a light, warm, and delightfully comfortable head-dress, but is a very poor protection against severe sun.

101 Nagar, as most of the surrounding people and the inhabitants themselves generally call it, though they also pronounce the word Nagér, and the scientific, for some cause best known to themselves, insist on spelling it *Nagyr*, is a smaller State than Hunza. The
[161] 795 population is about the same, and is composed of Yeshkuns, professing themselves Shiahs, but very

6:India G-1 (9930)933

AVI Kashmir AV1
Jand AV3
Beraghie AV7

D 161 The greatest increase in population has taken place in Kib which registers a percentage of 327 increase over the last Census while Chilas on the other hand shows +30 per cent. increase. The case of Nagar is no doubt alarming as instead of an increase it shows a decrease of 316 persons or a variation of −3·63 per cent. In the thinned down mountainous therefore Nagar forms the one single exception of decrease of population in the State in contrast with all other tehsils which register all-round increases. The causes of variation have been explained by the Political Agent Gilgit in the following words :—

B 161

"All districts show an increase except Nagar which shows a decrease of 316. The increases are doubtfully due to the healthy normal life of the past 10 years, peace and security having more than out balanced small epidemics of Influenza in 1919-1920. Nagar, however, is undoubtedly nearing the saturation point as regards population—space land are being very scarce. Moreover, the Influenza epidemic in 1929 took large toll as did an epidemic of Typhus in 1930."

K 161 **32. General.**—Having attempted to effect a detailed analysis of the growth of population in the different Administrative Divisions such as Provinces, Districts and Tehsils, and having also made detailed survey of the fluctuating conditions of the decade responsible for producing such happy demographic results occasion is now ripe for us to take stock of our position and to bring the scattered data and arguments to a focus to enable proper penetration into the more intricate problems of population about which a promise was held out by us in the opening portion of this discussion.

K [32] The causes of the highly favourable growth of population which is almost on par with the All India increase (The decennial increase in the State being 9·8 per cent. against 10·6 per cent. of India) have already been studied in detail in the paragraphs dealing with the "Conditions of decade" but it would be advantageous to briefly review them here so that the reader may have an opportunity to refresh his memory and be better equipped to appreciate the theme. Sufficient, timely and well distributed rainfall (except for certain bad years of scarcity in the Skirdu and to some extent in Kathua district) bringing good harvests in its train effected a considerable improvement in the economic condition of the agriculturist and highly favoured the growth of population during the last ten years.

K [64] Exceptionally favourable conditions of public health in the decade which was characterised by the absence of severe epidemic of Influenza which during 1911-1921 inflicted greater mortality here than the Great World War. Although Plague in the Jammu Province, Cholera in Kashmir, mild Influenza and Typhus in the Frontiers did make occasional attacks but the prompt, vigorous and effective measures taken by the Medical authorities coupled with the co-operation of the people (who on account of the spread of education and accumulation of experience readily avail of the medical help and do a good deal to combat the disease) did not allow the epidemics to levy a high toll on the precious human life which consequently had a favourable measure for rapid multiplication.

K [312] Extension of irrigational facilities causing a considerable enlargement in the irrigated and irrigable area was further responsible for expansion of agricultural production. Improvement of communications especially the opening of the Banihal Cart Road, Jammu, Samba, Kathua, Akhnur and various other minor roads has imparted a good stimulus to trade resulting in increased prosperity of the people. Again the development of some of the industries and immediate possibilities of the growth of a larger number in the near future has besides providing employment to some people opened an era of hope for the youth of the country, who in the progressive permeation of the industrial atmosphere around him saw a magnificent vision of effective industrialisation in which lies the solution of the unemployment problem. Above all the prevalence of peaceful and orderly conditions ensuring security of life and property was highly conducive to the growth of population during the decade 1921-1930. In this connection it may be noted that the communal clashes and the political agitation in the State which created so much stir throughout the country commenced in July 1931 i. e., after the close of the decade 1921-1930 which alone is under review in the report.

K [471]

w. Tibetan AVI
Dard AV3
Hunza AV7

of 45,702 square miles and a population of 102,138 persons it will at once appear that the Ladakh tehsil though possessing the greatest area supports the smallest number of people. Its density is, one per square mile, the lowest figure in the whole State. Kargil and Skardu, however, with their respective densities of 9 and 13 present a better record the latter supporting 107,477 persons. All the three tehsils of the districts show a plus variation ranging between 4 and 5 per cent, which bear a happy contrast to the all-round decrease registered by these tehsils at the 1921 Census. WT 161

Of the total area of the Ladakh district only '28 per cent. is cultivable which in plain language means that out of total area of 45,702 square miles only 129 square miles are cultivable. Again out of '28 per cent. cultivable area 91·7 per cent. is net cultivated and there are very little prospects of agricultural expansion in this district. WT 241

The normal rainfall is 0·7" only. The entire gross cultivated area has to depend upon irrigation for growing crops. Rice, Bajra, maize are unimportant by their absence, wheat only occupies an inferior position having under it 17·5 per cent. of the cultivable area, 47 per cent. being under other food-crops including pulses of which gross is the chief staple.

30. Gilgit District.—The district consists of only one tehsil (Gilgit) with an area of 3,119 square miles and a population of 31,832 persons which gives a resultant density of 10 persons to a square mile. The increase at the present Census comes to 11·13 per cent. which compares well with other districts. D 161

Name of District or Tehsil.	Population 1931.	Density.	Percentage of variation.		
			1921-1931.	1911-1921.	1901-1911.
Gilgit District ..	31,832	10	+ 11·13	+ 19·5	.....
1. Gilgit Tehsil	31,832	10	+ 11·13	+ 19·5	.....

Of the total area 9 per cent. is cultivable out of which 81·6 is net cultivated, the balance still available for being brought under crops being about 18 per cent. The normal rainfall being very low i.e., 4·77" the entire agriculture depends upon irrigation which has received good attention from the Government during the present decade as has already been shown under paragraphs dealing with irrigational improvements. To counteract Nature's frugality in the matter of rainfall human effort has shown itself at its best in providing irrigational facilities as is reflected by the fact that 90·9 per cent. of the gross cultivated area is irrigated which conclusively proves that natural rainfall by itself would not help even an acre to produce crops. D 241

Here 23·6 per cent. of the area is under wheat, 9·7 per cent. under barley, 30·7 per cent. under other food-crops including pulses while 27·4 per cent. is taken up by miscellaneous crops. The supply for the military garrisons located at Gilgit is provided through a special "Supply and Transport Department".

31. Frontier Illaqas.—With an area of 14,680 square miles and a population of 64,544 persons the Frontier Illaqas show an increase of 3·82 per cent. over the last Census and the variation in each of the constituent units is shown by the marginal table. D 161 B 161

Name of District or Illaqa.	Population 1931.	Population 1921.	Density.	Percentage of variation.	
				1921-1931.	1911-1921.
1. Hunza	25,115	24,041	8	+ 4·45	+ 19·1
2. Nagar	24,548	23,573	8	- 2·48	+ 0·6
3. Punial	6,668	6,468	4	+ 3·09	+ 9·3
4. Yasin	7,288	6,985	7	+ 4·34	+ 13·3
5. Ishkoman	3,978	3,888	8	+ 2·31	+ 17·8
6. Chitral	4,113	4,110	8	+ 0·08	+ 0·0
7. Ishkoman	3,748	3,588	8	+ 4·46	+ 20·3
8. Yasin	8,106	8,091	8	+ 0·18	+ 9·6

Mc Biddulph G-3 (1873-1878) 1880 Afghanistan etc
4 AVJ Dard
Darusho AV7

proud of the independence they have always maintained, and they probably present the spectacle of a race living under almost the same conditions now as their forefathers did fourteen centuries ago. The rulers are called *Thum*, and their families are descended from twin brothers, Moghlot and Girkis, who lived about the end of the fifteenth century. General Cunningham makes the somewhat natural mistake of confounding Girkis with Kirghiz, and suggests that the former inhabitants of Hunza must have been Dards (?), who have since been displaced by the nomads of the Pamir. From this he goes on to argue that the rulers of Shigar must also be of Kirghiz blood; and following the same line of argument he states that the Astor district must once have belonged to the Tibetan race, because the ruling family are Makpons. He also mentions the Gilgitis as a race of Dardo-Tibetans, for which assumption there is no adequate foundation.[1]

I have been told by a Nepaulese gentleman that *Thum* is a Chinese title, meaning Governor, and that it is used in a reduplicated form *Thum Thum*, to signify a Governor General.[2] Its existence in these countries, where its origin has been completely lost sight of, is curious and must be extremely ancient.

The rulers of Nager, who are descended from the first-named of the two brothers, are called Moghloté, the present Thum being Jafler Zahid Khan. Though the smaller of the two states, Nager has the larger population, owing to the greater amount of cultivable ground which it contains. The population is about 10,000 souls. The land where cultivable is extremely fertile and bears exceptionably heavy crops, and the Nager streams are rich in gold. The country is especially famous for its apricots, which are dried and exported to the Punjab in considerable quantities. Nearly opposite Hunza, the Myetsil River, a considerable stream, joins the main river from the south-west. The fort of Nager and the Thum's house are on the southern side of this stream, about 3 miles from the junction, at an elevation of 8,000 feet above the sea. Both sides of this valley belong to Nager, and it forms the eastern boundary of the state. At the head of it is the difficult and dangerous road over the Hispar Pass into the Shigar Valley, which is never used except in cases of necessity. When Cashmere authority was temporarily

[1] Cunningham's *Ladakh*, pages 27, 58, 58, 295.

[2] It is perhaps a corruption of the word Tung, which appears in many titles. The Chinese Governor of Kashgharia is called Taong Tung, and the officer who commands the troops is styled Tung-lung.

[See I. Cunningham, AJ4 West Tibetan file -- Analyst]

99: Biddulph G-3 (1873-1878) 1880 AUS-Afghanistan AUS
4 AV3 Dard
Burush. AV7

When Cashmere authority was temporarily
expelled from Gilgit, between 1852 and 1860, communication with Nager was maintained by this road. In the prosperous times of the Shin rule, the Thums of Nager acknowledged the Ras of Gilgit as their feudal superiors, and tradition relates that the villages of Nilt, Gulmit, Toll, and Pussunt, which now belong to Nager, were given as dowries to different Thums who married daughters of the Trakhané. At the time of the Sikh occupation of Gilgit a very close connection existed between the rulers of the two states of Gilgit and Nager. Between Hunza and Nager a great rivalry, which has frequently resulted in open hostility, has always existed, but they are generally ready to combine against an external foe. Though possessing a common origin, the people of Nager are distinguished for timidity and incapacity for war, and no instance is recorded of their being victorious over their rivals of Hunza, at whose hands they have suffered many disastrous defeats. The people of Nager are Shiahs, and slavery does not exist among them. Since 1868 Nager has been tributary to Cashmere, to which it makes an annual payment of twenty-one tolas of gold and two baskets of apricots.

Between the two states the river flows between perpendicular banks, 300 feet high and 600 feet apart at the top. The banks can only be ascended in a few places, which are carefully guarded.

Hunza, which comprises a considerable extent of territory, has an agricultural population of about 6,000 souls. North of the great range of peaks which bisects the principality from south-east to north-west the country opens out into rolling grass steppes, supporting a scattered pastoral population. Here the great wild sheep (*O. Poli*) roams in large herds. This tract is known as Little Goohjal, to distinguish it from Wakhan, which, south of the Hindoo Koosh, is known as Goohjal proper.

From the north-east the Shimshal stream, draining the valley of that name, brings down a great volume of water in summer, and effectually closes all access from the south, except to men on foot. The only direct route in summer to the Shimshal Valley from the south, is by the high and difficult Moorkôn Pass, which is only open for two months in the year. From the head of the Shimshal Valley a road, only passable for men on foot, leads to Koolanooldi in the Yarkund Valley. It was by this road that attacks on the caravans were organised. Another route leads by a somewhat